

## NEWS AND NOTES

*Crocodylus intermedius* Graves, A Review of the Recent Literature

(Figures 1-3)

Studies evaluating the definitive morphological characters of living crocodylians have disclosed some confusion in the recent literature on the Orinoco crocodile *Crocodylus intermedius* Graves (Mook, 1921, Bull. Amer. Mus. Nat. Hist., 44(13):165-173; Wermuth, 1953, Sonderdruck aus: Mitteilungen aus dem Zoologischen Museum in Berlin, 29(2):493-495; Wermuth and Mertens, 1961 Schildkröten, Krokodile, Brückenechsen, Veb Gustav Fischer, Jena: 359 and 361). A complete biological profile of the species is given by Medem (1958, *Caldasia*, 8(37):175-215) and need not be repeated here.

I thank Dr. F. Wayne King and the New York Zoological Society (= NYZS); Federico Medem; the American Museum of Natural History, New York (= AMNH), and its Herpetological Information Search System; and the Field Museum of Natural History, Chicago (= FMNH) for their assistance in making specimens and difficult-to-obtain literature available for study and for reviewing the manuscript.

## DISCUSSION

Before Medem presented his collection to the Field Museum of Natural History in 1958, *Crocodylus intermedius* was poorly represented in zoological and museum collections. Those specimens which were available were supported by little or no collecting data. Consequently, one skull (AMNH 8790), bearing the data "Venezuela, South America, via the New York Zoological Society," was described in detail and figured by Mook (1921), and subsequently figured by Wermuth (1953), and Wermuth and Mertens (1961). Unfortunately, the skull was not available for re-examination until recently. Comparison of AMNH 8790 to a female *Crocodylus intermedius* collected by Medem on the Rio Ariari, Territory of Meta, Colombia (FMNH 75658); and individuals of *Crocodylus cataphractus* from K. P. Schmidt's Congo Expedition (AMNH 10075), and from Liberia, West Africa (NYZS 610716 and 610504) discloses AMNH 8790 to be an example of *Crocodylus cataphractus*, the West African slender-snouted crocodile, erroneously identified as *Crocodylus intermedius*.<sup>1, 2</sup>

Medem (1958:184) pointed out that Mook described and figured AMNH 8790 with nasal bones not entering the external narial opening while those *Crocodylus intermedius* he had examined from Colombia showed the nasals to enter the external narial opening. However, he did not realize Mook had incorrectly identified the specimen as *C. intermedius*.

In addition, AMNH 8790 differs from *Crocodylus intermedius* (FMNH 75658) and agrees with *Crocodylus cataphractus* (AMNH 10075), in the following aspects:

The pre-maxillary/maxillary suture extends caudad to slightly beyond the level of the first maxillary teeth in AMNH 8790, while in FMNH 75658 the suture nearly reaches the level of the third maxillary teeth.

The mandibular symphysis of AMNH 8790 and AMNH 10075 extends to the level of the eighth mandibular teeth, while in FMNH 75658 the symphysis barely reaches the level of the seventh mandibular teeth.

The palatine/maxillary suture in AMNH 8790 is triangular, anteriorly pointed at its junction with the median palatine suture, and occupies a space approximately equal to that of three adjacent maxillary teeth. FMNH 75658 has an elongated parallel-sided palatine/maxillary suture, square at its anterior face which is at right angles to the median palatine suture. Its length coincides to the space occupied by four maxillary teeth.

The ninth maxillary teeth are largest in AMNH 8790 while the tenth are the largest in FMNH 75658.

<sup>1</sup> While comparing plate figures, it was noted that the skull figure for *Tomistoma schlegelii* (S. Müller) shown in Wermuth and Mertens, 1961, page 376, was duplicated in error on page 360 as the skull figure for *Crocodylus cataphractus* Cuvier.

<sup>2</sup> De Rochebrune, 1883 (Faune de la Senegambie, J. Durand, Imprimeur de la Societe Linneenne, Bordeaux, p. 47), includes *Temsacus intermedius* Gray (= *Crocodylus intermedius* Graves) in the fauna of Senegambi (= Senegal and Gambia) although the species is unknown in Africa. The specimen he figures most closely resembles *C. intermedius*.

The conformation of AMNH 8790 is suggestive of *C. cataphractus* in the relatively high, square profile of the cranial table, the concave dorsal aspect of the snout, and the proportionately narrow frontal between the orbits. FMNH 75658 differs in having a relatively low cranial table, a slightly elevated or "swollen" snout immediately anterior to the orbits, and a frontal region which is wide in proportion to the overall length of the skull.

It should be noted that AMNH 8790 is the skull of a deformed specimen, probably resulting from confined captive conditions over a prolonged period of time during shipment. Many of the maxillary and mandibular teeth are broken or twisted in their sockets. The mandible itself is broken, perhaps during preparation or damaged in life. Portions of the anterior mandible and the pre-maxillaries are also damaged or worn away, a condition often seen in captive specimens poorly crated for shipment, in cramped quarters.

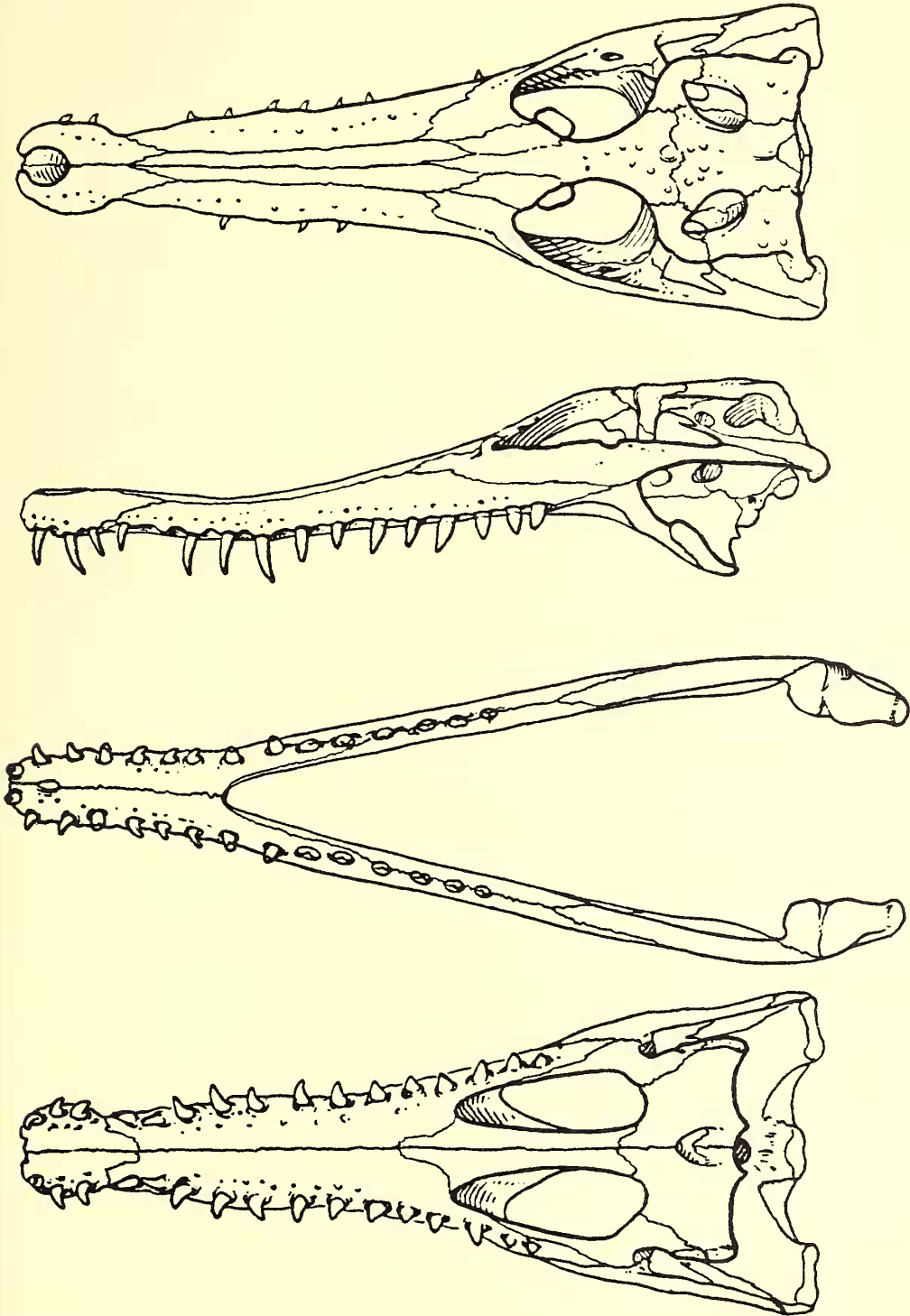
Only two "Orinoco crocodiles" appear in the New York Zoological Society's annual reports between the years 1900 and 1922. These coincide to the receipt of AMNH 8790 and another preserved juvenile specimen (AMNH 2206) bearing "Colombia, South America," data, also "via the New York Zoological Society." The

latter preserved specimen is also an example of *Crocodylus cataphractus*. One of these is reported to have been secured by the zoological park from a donor recently returned from a tour aboard a merchant vessel.

One of these specimens was photographed in life while at the zoological park. The plates, misidentified as *Crocodylus intermedius*, were reproduced in subsequent literature (Ditmars, 1913, *Bull. Zool. Soc.*, 16(58):1005; DeSola, 1933, *Bull. Zool. Soc.*, 36(1):14, Wermuth, 1953, 29(2):493). These photographs are preserved in the NYZS photographic archives.

The identification of living crocodylians without the availability of accurate collecting data has been a problem for scientific staffs of zoological parks and museums, particularly during earlier years when the classic works of Boulenger, Cuvier, and Gray represented the only comprehensive literature on crocodylians. These publications, which stress osteological materials rather than living specimens, obviously were of little help in the identification of a rare species perhaps never seen before and seldom encountered since.

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**AMNH 8790**

FIGURE 1. *Crocodylus cataphractus* Cuvier (AMNH 8790), misidentified and described in Mook (1921) as *Crocodylus intermedius* Graves. Figure adapted from Mook.

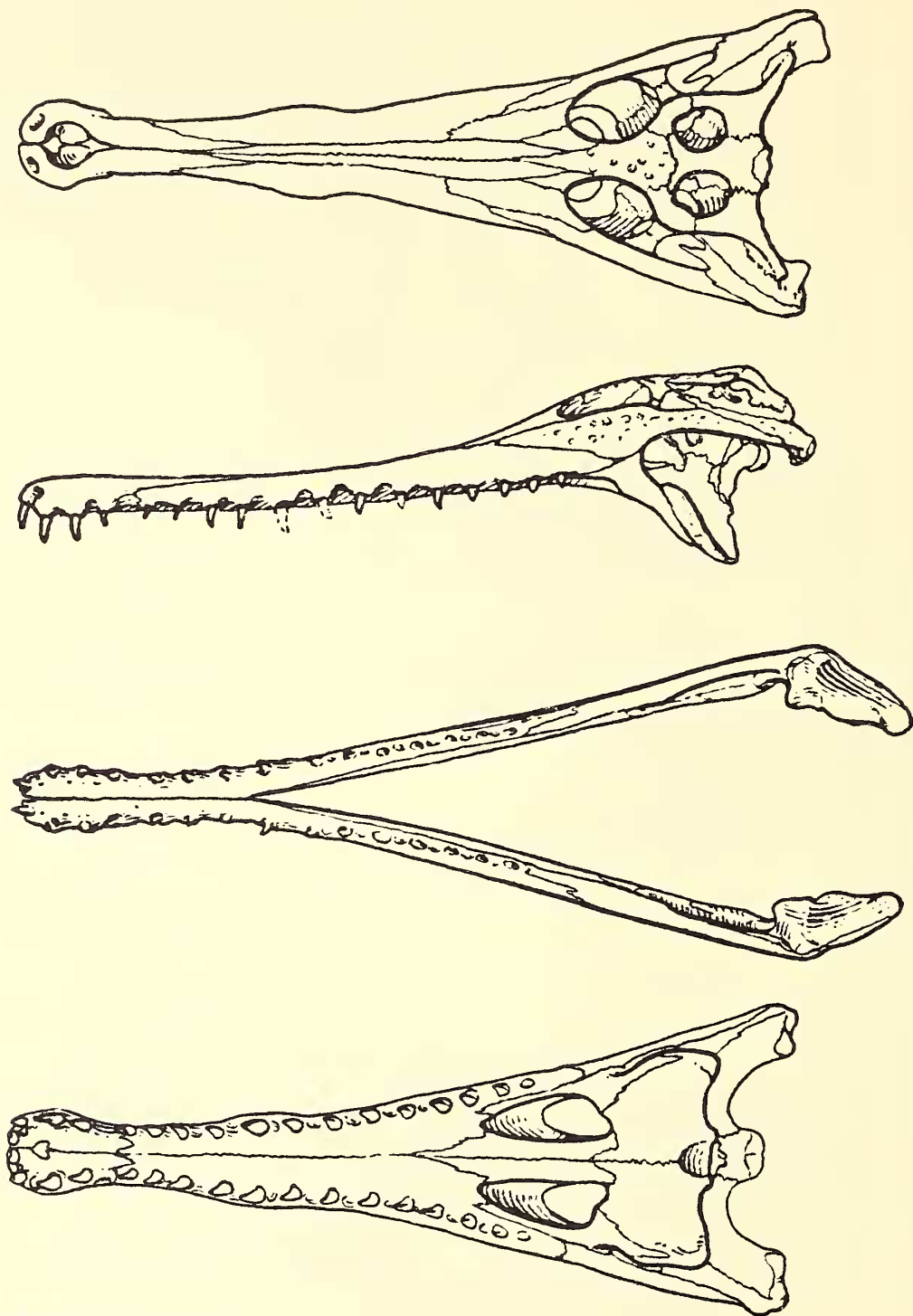
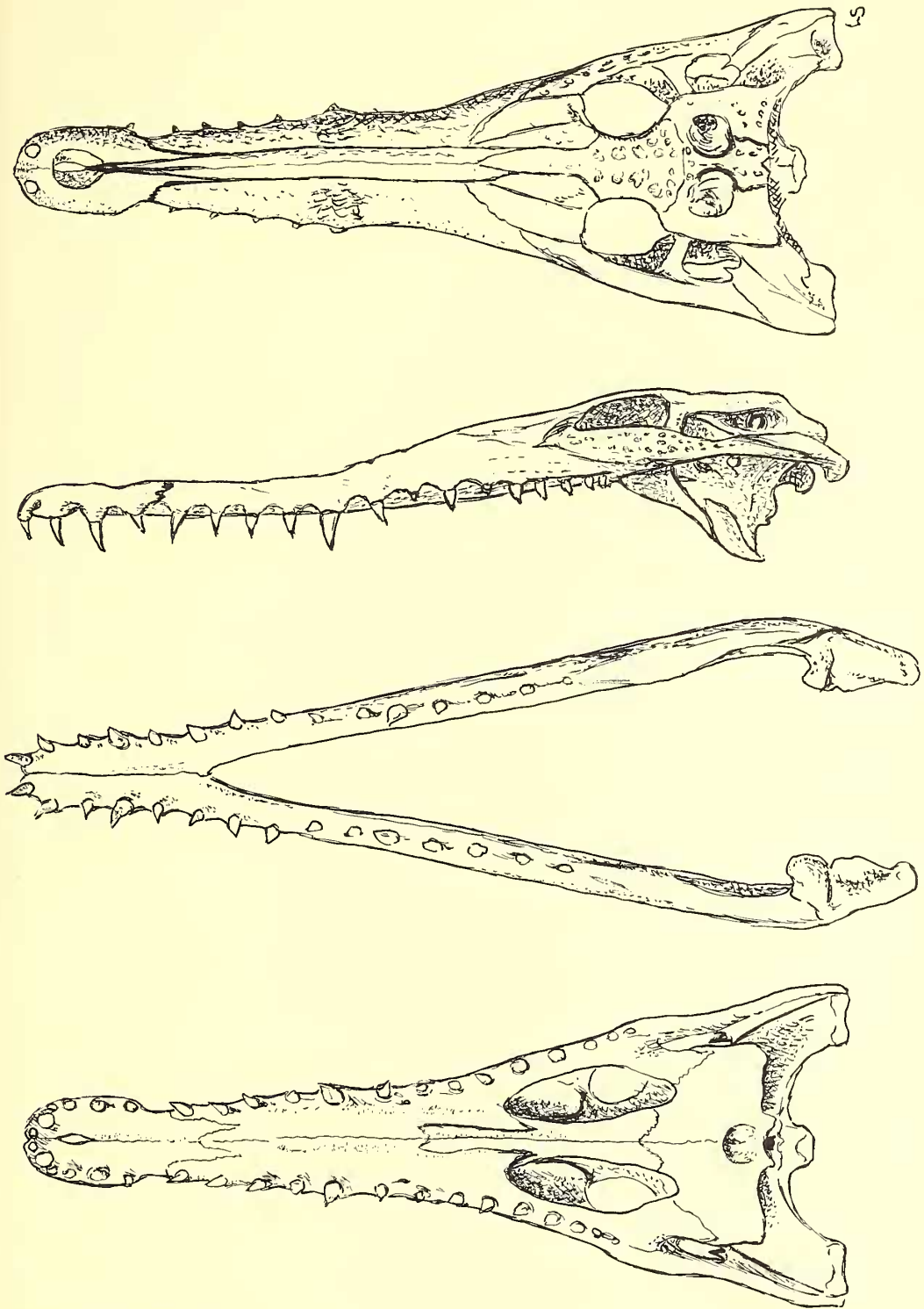
**AMNH 10075**

FIGURE 2. *Crocodylus cataphractus* Cuvier (AMNH 10075), described in Mook (1921). Figure adapted from Mook.



**FMNH 75658**

FIGURE 3. *Crocodylus intermedius* Graves (FMNH 75658), a juvenile female from Rio Ariari, Territory of Meta, Colombia, collected by Federico Medem. Illustration by Lloyd Sandford, NYZS.